2013-1436
(Serial No. 10/597,536)

IN THE
UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

IN RE JOHN MURKOWSKI, ROBERT MESAROS,
AND LARRY AZZANO

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board, in Appeal No. 2011-012415

BRIEF FOR APPELLANTS JOHN MURKOWSKI, ROBERT MESAROS, and LARRY AZZANO

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September 4, 2013

CERTIFICATE OF INTEREST

Counsel for Appellants John Murkowski, Robert Mesaros, and Larry Azzano certify the following:

1. The full name of every party represented by us is:

John Murkowski, Robert Mesaros, and Larry Azzano

2. The name of the real party in interest represented by us is:

Koninklijke Philips N.V. (formerly Koninklijke Philips Electronics N.V.)

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party represented by us are:

None

4. The names of all law firms and the partners or associates that appeared for the party now represented by us in the trial court or agency or are expected to appear in this Court are:

J. Michael Jakes
David K. Mroz
FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, LLP

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STATEMENT OF RELATED CASES

No other appeal in or from the same proceeding in the U.S. Patent and Trademark Office was previously before this or any other appellate court.

Counsel are not aware of any other case pending in this or any other court that will directly affect or be directly affected by this Court's decision in this appeal.

I. STATEMENT OF JURISDICTION

This appeal is from a final decision of the U.S. Patent and Trademark Office, Patent Trial and Appeal Board (PTAB), issued February 27, 2013, in Appeal No. 2011-012415, affirming the final rejection of all pending claims in Application No. 10/597,536. A1-4. The PTAB had jurisdiction under 35 U.S.C. §§ 6(b) and 134(a).

Appellants filed a timely notice of appeal under 35 U.S.C. § 142 and 37 C.F.R. § 1.304(a)(1) on April 25, 2013. A331-32. This Court has jurisdiction under 28 U.S.C. § 1295(a)(4)(A) and 35 U.S.C. § 141(a).

II. STATEMENT OF THE ISSUE

Whether the PTAB's affirmance of the examiner's obviousness rejection should be reversed where each claim at issue contains limitations not disclosed in the prior art that, when incorporated into an ultrasound system, satisfied long-felt needs, and where each claim, when considered as a whole, was a significant improvement over the prior art.

III. STATEMENT OF THE CASE

A. Preliminary Statement

Application No. 10/597,536 ('536 application) describes an ultrasound system having an articulating arm assembly that allows a flat-panel display to move over a wide range of positions with the touch of a finger. The arm assembly has two movable, articulating arms that connect the display to a cart-borne ultrasound

system. A 4-bar linkage with a piston inside is incorporated into the articulating arm assembly to offset the mass of the display, thereby allowing easy movement of the display. To eliminate potential risks posed by a display that can move at the touch of a finger in multiple directions, the ’536 application discloses a feature that enables the two articulating arms to lock together in a stowed position. Thus, the cart can move safely around a hospital without damaging the display or injuring an operator.

Claim limitations directed to the inter-arm locking mechanism and the articulating arm assembly containing the 4-bar linkage and piston that supports the flat-panel display are present in every claim at issue on appeal (i.e., claims 1, 3, 4, and 6-14). These limitations are not disclosed in the prior art relied on by the examiner (i.e., the Burris, Wilkins, and Allen patents), either alone or in combination. Moreover, these undisclosed limitations, when incorporated into an ultrasound system, satisfied long-felt needs in the ultrasound industry. In particular, prior ultrasound systems were large and heavy, which made them difficult to transport around the hospital and position during examinations. Sonographers frequently had to turn their heads back and forth from the patient to the display, causing body strain, fatigue, and loss of efficiency. While the Burris patent solved some of these problems to an extent, it did not fully solve all of them.

The invention described in the ’536 application, however, did solve these problems. Because of the articulating arm assembly’s 4-bar linkage and piston that supports the flat-panel display, and because of the inter-arm locking mechanism, the ultrasound system disclosed in the ’536 application can be transported safely through the halls of the hospital directly to a patient’s bedside with the articulating arms locked in a stowed position; the display screen can be positioned directly over the patient without worrying that the device will fall; and the screen can be repositioned with minimal effort throughout the examination. When each claim is considered as a whole (i.e., all the claim elements are considered together), it becomes apparent that the invention described in the ’536 application has a superior design and is a significant improvement over the prior art.

The examiner, however, rejected claims 1, 3, 4, and 6-14 of the ’536 application, improperly relying on hindsight and using the invention as a template to piece together a combination of prior art references. The examiner also failed to provide a valid reason why a person skilled in the art would combine the references he relied on. Instead, the examiner used *the benefits provided by the applicants’ claim limitations not disclosed in the prior art* for his reasons why a person skilled in the art would combine Burris, Wilkins, and Allen. It is legal error, however, to use an applicant’s invention to define a problem that the invention solves—which is exactly what the examiner did here. Thus, in effect, the

examiner's analysis amounts to nothing more than an identification of claim limitations in the prior art, which cannot provide a legally recognized basis for an obviousness rejection.

The PTAB also erred because one of the prior art references it relied on, the Allen patent, bears no relation to the ultrasound field—it involves a support structure for a microwave dish antenna. The feature that the examiner took from this reference, a locking mechanism, could not even be incorporated into the claimed invention because the designs are incompatible. Thus, a person skilled in the art would not be motivated to combine Allen with either Burris or Wilkins. For these reasons, the PTAB's decision to sustain the examiner's obviousness rejection of claims 1, 3, 4, and 6-14 is not supported by substantial evidence and should be reversed.

B. Nature of the Case, Course of Proceedings, and Disposition Below

This appeal is from a PTAB decision affirming the final rejection of all pending claims (1, 3, 4, and 6-14) in Application No. 10/597,536. A1-4. After the examiner's initial rejection (A144-54), the applicants amended the claims and canceled claims 2, 5, and 15-20 (A175-82). The examiner issued a final rejection of the amended claims (A236-43), and the applicants appealed to the (then) Board of Patent Appeals and Interferences (Board) (A215-24).

Before the Board heard the appeal, however, the examiner withdrew the rejection, reopened prosecution, and made a new, final rejection, relying on an additional prior art reference. A236-43. The applicants appealed the final rejection again, which the newly formed PTAB sustained. A1-4. This appeal to the Federal Circuit followed. A331-32.

IV. STATEMENT OF THE FACTS

A. Background of the Invention

The invention in this appeal relates to ultrasonic diagnostic imaging systems with flat-panel displays. Ultrasound systems are typically mounted on carts so that they can be wheeled to a patient's bedside for imaging. A13; A286. An example of a prior ultrasound system is shown in Fig. 1 of the application (below).

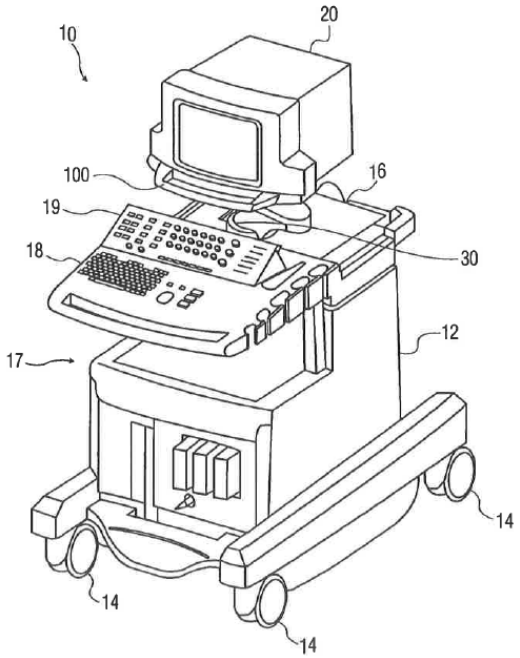


FIG. 1

A13; A29. To operate the system, the sonographer must hold the probe in contact with the patient while operating the controls and viewing the images on the display. A13. For the sonographer to assume a comfortable position while focusing on the patient, the system controls and display should be movable. *Id.* The display in Fig. 1 is a cathode ray tube (CRT) monitor (20) mounted on a 2-arm articulating mount (30), which allows the monitor to rotate and move side to side. *Id.*

More recently, the heavy CRT monitors on cart-borne ultrasound systems have been replaced by lighter flat-panel displays. A286. Fig. 2 of the application (below) shows a prior ultrasound system with a flat-panel display (16).

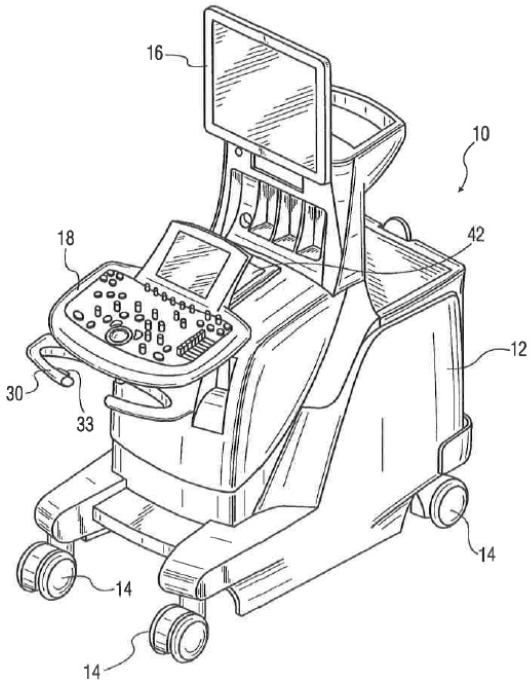


FIG. 2

A13; A30. In this prior system, the control panel (18) can be moved, but the flat-panel display is fixed at a nominal position above the control panel. A13.

B. Summary of the Invention

The ultrasound system of the present invention has an articulating arm assembly that allows a flat-panel display to be moved over a wide range of positions and with the touch of a finger. A14; A286. The arm assembly has two movable arms, one connected to the cart-borne ultrasound system and the other to the display. A14; A40; A286-87. The articulating arms also have an inter-arm locking mechanism, which locks the two arms together in a stowed position in line with the cart's direction of travel. A21; A287. In this position, the display is safely locked down on the cart, and the cart can be moved to another room or hospital floor without damaging the display or injuring an operator. A286-87.

As shown in Fig. 3 (below), the flat-panel display (40) is connected to an articulating arm assembly (50), which can be used to adjust the elevation and lateral position of the display.

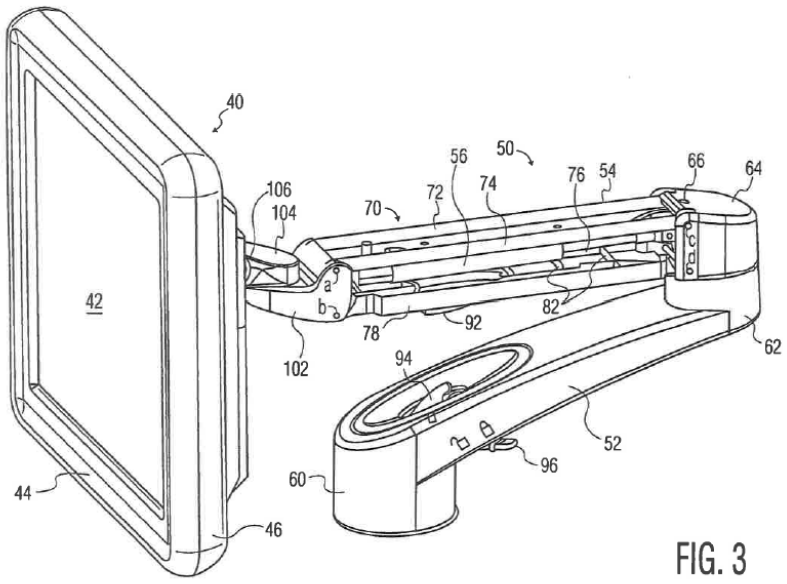


FIG. 3

A15; A31; A286. The articulating arm assembly has a first arm (52) movably mounted to the main body (*see* Fig. 12, A40), and a second arm (54) movably connected to the first arm and to the flat-panel display. A15-16; A286-87.

One of the arms (shown as the upper arm in Fig. 3) includes a 4-bar linkage (70) and a piston (56) inside the linkage. A17; A287. The 4-bar linkage enables the flat-panel display to be raised and lowered while maintaining the orientation of its tilt toward the sonographer. A17; A287. The piston inside the linkage provides a counterweight force that offsets most of the weight of the flat-panel display so that it can be easily adjusted with the touch of a finger. A17; A21; A286-87.

The inter-arm locking mechanism (92, 94) locks the two articulating arms together when they are lowered as shown in Fig. 8C (below).

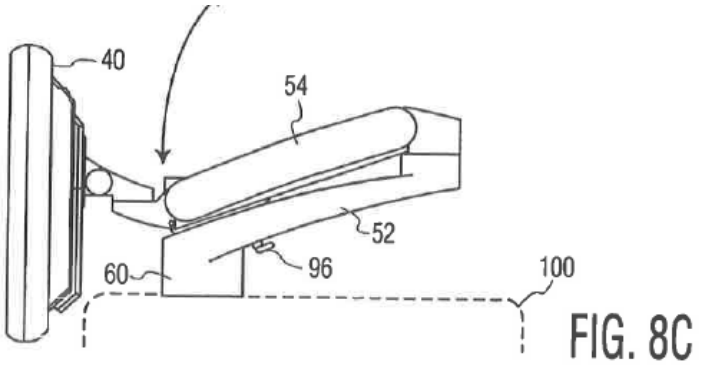


FIG. 8C

A18; A36. The arms are lowered in line with the cart's direction of travel so that the display is balanced during transport. A287. And with the arms locked together in the stowed position, the cart can be moved safely without injuring the equipment or the operator. *Id.*

C. Pending Claims

Claims 1, 3, 4, and 6-14 are the claims involved in this appeal. A5-7. Claim 1 reads as follows:

> 1. An ultrasonic diagnostic imaging system comprising:
>
> a main body housing imaging electronics and a control panel coupled to the imaging electronics;
>
> a flat panel display electrically coupled to the imaging electronics;
>
> a wheeled cart on which is mounted the main body and the flat panel display with the control panel on the front, the wheeled cart being adapted so that the cart can travel in the front direction; and
>
> an articulating arm assembly to which the flat panel display is connected for adjusting the elevation and lateral position of the flat panel display with respect to the main body, the

> articulating arm assembly including a first arm movably mounted to the main body and a second arm movably connected to the first arm and to the flat panel display, wherein at least one of the arms includes a 4-bar linkage containing a piston inside the linkage; and
>
> an inter-arm locking mechanism, located on the first and second arms, which is adapted to lock the two arms together in a stowed position when the two arms are lowered in line with the direction of travel.

A5. Dependent claims 10-12 further define claim 1's 4-bar linkage and piston, which counterbalances the weight of the flat-panel display:

> 10. The ultrasonic diagnostic imaging system of Claim 1, wherein the second arm includes a 4-bar linkage, and wherein the piston further comprises:
>
> a pneumatic piston which acts to provide a force which at least partially offsets the weight of the flat panel display.
>
> 11. The ultrasonic diagnostic imaging system of Claim 10, further comprising an adjustment mechanism, coupled to the pneumatic piston, which is operable to adjust the force provided by the pneumatic piston.
>
> 12. The ultrasonic diagnostic imaging system of Claim 11, wherein the pneumatic piston is adjusted to provide a balancing counter-weight force when the second arm is oriented in a horizontal orientation.

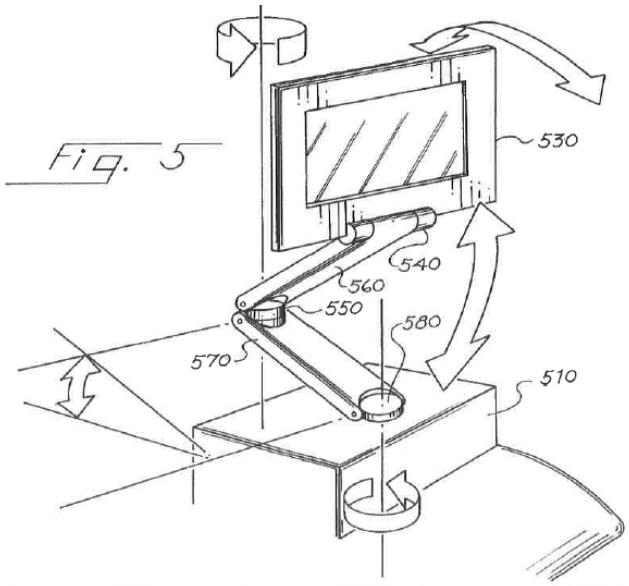
A6-7. Claims 11 and 12 were argued separately from claim 1 in the appeal to the PTAB. A293.

D. Examiner's Rejection

The patent examiner rejected all of the pending claims as obvious over a combination of three prior art patents: Burris et al. (U.S. Patent No. 5,924,988);

Wilkins et al. (U.S. Patent No. 6,663,569); and Allen (U.S. Patent No. 5,363,116). A237-43; A316-22.

Burris discloses an ultrasound diagnostic imaging system having a flat-panel display. A333-48. As shown in Fig. 5 (below), the flat-panel display (530) is connected to two swiveling arms (560, 570) mounted on the cart.



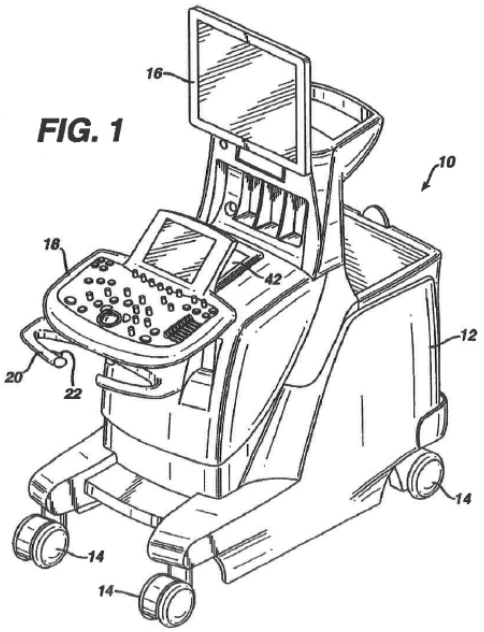
A335; A345 at 6:12-20.

As the examiner recognized, however, Burris is missing: (1) a 4-bar linkage containing a pneumatic piston inside the linkage; and (2) an inter-arm locking mechanism to lock the two arms together in a stowed position. A238; A317. The examiner initially took the position that the hinge (550) in Burris is an inter-arm locking mechanism that locks the two arms together. A191. The examiner withdrew the rejection, however, and reopened prosecution to make a new

rejection when the applicants pointed out that the hinge in Burris has no locking ability. A221; A241-42.

The examiner also stated that the up-and-down arrow in Fig. 5 of Burris indicates the "motion direction" or "travel direction" of the "part," i.e., the flat-panel display can "move up or down or lower in line with the direction of travel." A317. Whether the "part" can travel in a particular direction, however, is not relevant to claim 1, which specifies that "the two arms are lowered in line with the direction of travel" *of the cart*. A5. The claim says that "the cart can travel in the front direction," which is the "direction of travel"—not the motion or direction of the arms or the display.

Wilkins, like Fig. 2 in the '536 application, discloses an ultrasound system with a movable control panel and a flat-panel display that is fixed at a nominal position above the control panel. A349-61.



A350. The heavy control panel (18) has a lift mechanism so that it can be raised and lowered. A359 at 2:13-24. As shown in Fig. 5a (below), the lift mechanism for the control panel has a 4-bar linkage (40) and a positive-lock, hydraulic piston (60).

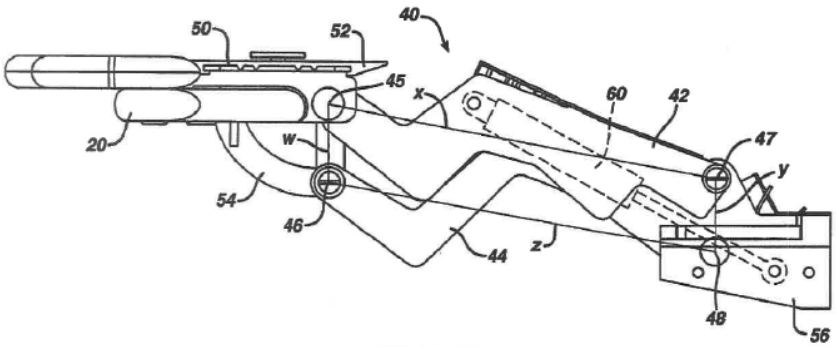


FIG. 5a

A353. The piston, which is normally locked to maintain the position of the control panel, is controlled by a lift release (e.g., a foot pedal). A360 at 3:9-25. When the lift release is depressed, a valve is opened between two oil-filled compartments of

the hydraulic piston. *Id.* When the control panel is at the desired height, the lift release is released by the operator, which causes the piston valve to close, permitting the piston and control panel to remain in their current positions. *Id.*

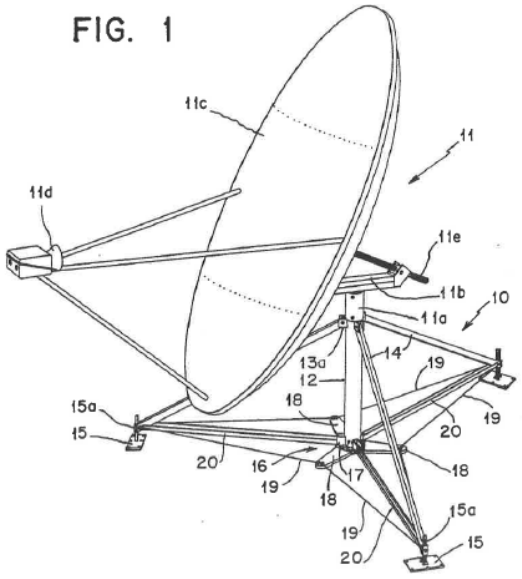
The examiner argued that it would have been obvious to modify the ultrasound system in Burris to add the 4-bar linkage and pneumatic piston in Wilkins "for balancing the mass of the display." A239; A318. The examiner dismissed the applicants' argument that the 4-bar linkage and piston in Wilkins were used to lift the heavy control panel—not the flat-panel display—stating that he was not relying on Wilkins "to teach [a] mechanical device for lifting," but only a "4-bar linkage and piston." A321. Finding that the lifting of the flat-panel display is already disclosed in Burris, the examiner argued that the 4-bar linkage and piston in Wilkins is also "capable of lifting a lighter flat panel display." *Id.*; *see* A242.

Additionally, the examiner found that the piston in Wilkins provides a counterbalance for the weight of the control panel as recited in claims 10-12. A322. The reason given by the examiner for this conclusion is that, "without providing counterbalance weight the control panel would not be at its current elevation; it would fall down." *Id.*; *see* A242.

Conceding that Burris does not disclose an inter-arm locking mechanism (A241-42; A320), the examiner then argued that it would have been obvious to modify the system in Burris to include an inter-arm locking mechanism as taught

by Allen "for convenient transportation of the support assembly" (A239; A318). The examiner specifically relied on Figs. 2 and 3 of Allen as disclosing an inter-arm locking mechanism to lock the two arms together in a stowed position when "the two arms are lower[ed] in line with the direction of travel and lock[ed] by the screw." A238-39.

Allen has nothing to do with ultrasound systems, carts, or even displays. A362-67. As shown in Fig. 1 (below), Allen discloses a foldable support assembly for a microwave dish antenna.



A363. The support assembly has three (or more) legs hinged to a bracket that slides up and down a center post and compression beams hinged to the legs.

FIG. 2

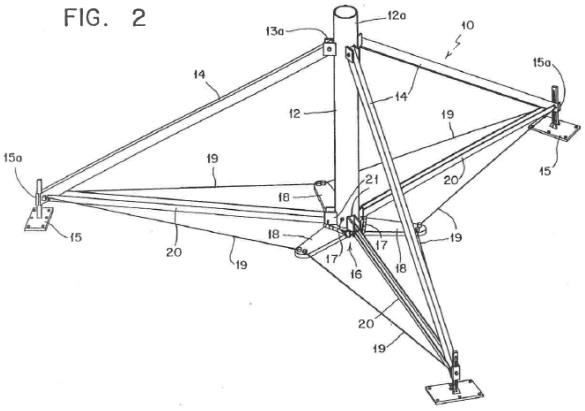
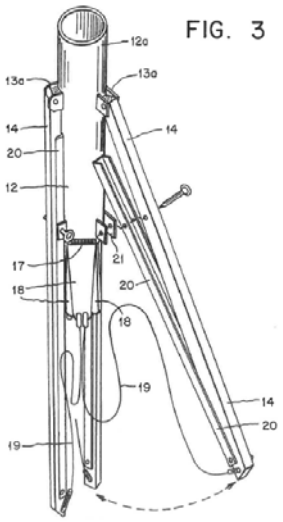


FIG. 3



A364-65. When the bracket slides to the bottom position, the ends of the compression beams are detachably pinned to the bracket to brace the tripod in the standing position. When the assembly is packed up for moving, the pins are removed from the beams and brackets, the bracket is slid up the central post, and the pins are reinserted in the bracket to hold the legs and compression beams folded against the post. A367 at 3:39-48.

The examiner rejected the applicants' argument that the folding and locking mechanism in Allen is complicated and completely different in function than the claimed inter-arm locking mechanism. A291; A321. The applicants had pointed out that an ultrasound designer would not use the Allen mechanism to lock the arm assembly for a flat-panel display because doctors and nurses would not have the patience for such a mechanism. A291. They would rather move the cart-borne ultrasound system with the display still articulating than go through the unlocking and locking process described in Allen every time the cart was moved. A291-92.

The examiner dismissed this argument, however, since he only relied on Allen "to teach [a] stow[ed] position and locking mechanism," and the function was the same, namely, "to hold up or support a device when in use and in stow[ed] position when not in use." A321-22.

The examiner also argued that the arrow at the bottom in Fig. 3 discloses the "direction of travel," meaning that, "when the legs are open or close[d] that is [the] direction of travel." A322. As discussed above, however, the direction of travel refers to the direction of travel *of the cart* in the front direction, not the direction of travel of the arms (or legs).

E. PTAB's Decision

The PTAB sustained the rejection of claims 1, 3, 4, and 6-14 for the reasons set forth in the examiner's Answer, which it incorporated by reference. A3.

For emphasis only, the PTAB held that Allen was analogous art, even though it was not in the same field of endeavor (i.e., ultrasound diagnostic imaging systems) as the invention or Burris. *Id.* The PTAB specifically found that a person skilled in the art would look to other references employing locking mechanisms for articulating arm assemblies, "including such assemblies for a microwave dish antenna." *Id.* The PTAB did not address the applicants' argument that the complexity and different function of the mechanism in Allen would make it unsuitable for a cart-borne ultrasound system.

V. SUMMARY OF THE ARGUMENT

The PTAB's decision sustaining the examiner's rejection of claims 1, 3, 4, and 6-14 is not supported by substantial evidence and should be reversed. Each of these claims has limitations directed to the "inter-arm locking mechanism" and the "articulating arm assembly" containing the 4-bar linkage and piston that supports the flat-panel display. These limitations are not disclosed in Burris, Wilkins, or Allen, either alone or in combination. Moreover, these undisclosed limitations are important because they directly relate to the invention's solving of long-felt industry needs involving the weight, stability, and mobility of ultrasound machines. When the claimed invention is considered as a whole, as required by this Court's precedent, it becomes apparent that the '536 application discloses a superior design that is a significant improvement over the prior art.

The examiner, in contrast, performed an improper limitation-by-limitation, reference-by-reference analysis fraught with hindsight, using the invention as a template to piece together Burris, Wilkins, and Allen. Moreover, the examiner gave no valid reason why a person skilled in the art would combine Burris, Wilkins, and Allen to arrive at the claimed invention; he instead relied on *the benefits of the applicants' claim limitations not disclosed in the prior art* for the reasons to combine. It is legal error, however, to use an applicant's invention to define a problem that the invention solves. Thus, the examiner's analysis, adopted

in total by the PTAB, reduces to an identification of claim limitations in the prior art, which, alone, cannot provide a sufficient basis for an obviousness rejection.

Both the examiner and the PTAB also erred in relying on the Allen reference at all, which bears no relation to the ultrasound field. Allen involves a support structure for a microwave dish antenna. The feature that the examiner takes from this reference, a locking mechanism, could not be incorporated into the claimed invention because the designs are incompatible. Thus, a person skilled in the art would not combine Allen with either Burris or Wilkins. For these reasons, the PTAB's decision upholding the examiner's obviousness rejection of claims 1, 3, 4, and 6-14 is not supported by substantial evidence and should be reversed.

VI. ARGUMENT

A. Standard of Review

This Court reviews an ultimate legal determination of obviousness from the PTAB without deference, and it reviews the underlying factual findings for substantial evidence. *See In re Zurko*, 258 F.3d 1379, 1384 (Fed. Cir. 2001). This substantial evidence standard allows this Court to use its "comparative expertise" to "understand the basis for the [PTAB's] finding of fact" and "assur[e] proper review." *Id.* (quoting *Dickinson v. Zurko*, 527 U.S. 150, 162-63 (1999)).

B. Legal Standard

A patent claim can only be rejected for obviousness "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103. Thus, "[f]ocusing on the obviousness of substitutions and differences, instead of on the invention as a whole, is a legally improper way to simplify the often difficult determination of obviousness." *Gillette Co. v. S.C. Johnson & Son, Inc.*, 919 F.2d 720, 724 (Fed. Cir. 1990); *see also Sanofi-Synthelabo v. Apotex, Inc.*, 550 F.3d 1075, 1086 (Fed. Cir. 2008) ("The determination of obviousness is made with respect to the subject matter as a whole, not separate pieces of the claim.").

An obviousness analysis under § 103 requires inquiries into (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. *Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1375 (Fed. Cir. 2012). Objective evidence "may often be the most probative and cogent evidence of nonobviousness in the record," *id.* at 1378 (quoting *Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1365 (Fed. Cir. 2008)), and "may often establish that an invention appearing to have been obvious in light of the prior art was not," *id.* (quoting *Simmons Fastener Corp. v. Ill. Tool Works, Inc.*, 739 F.2d

1573, 1575 (Fed. Cir. 1984)). Examples of objective indicia of nonobviousness are "commercial success, long felt but unsolved needs, [and] failure of others." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 399 (2007).

The objective evidence of nonobviousness serves as "objective guideposts" and "powerful tools for courts faced with the difficult task of avoiding subconscious reliance on hindsight." *Mintz*, 679 F.3d at 1378. "Care must be taken to avoid hindsight reconstruction by using 'the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.'" *In re NTP, Inc.*, 654 F.3d 1279, 1299 (Fed. Cir. 2011) (quoting *Grain Processing Corp. v. American-Maize Prods. Co.*, 840 F.2d 902, 907 (Fed. Cir. 1988)) (reversing Board decision because its analysis was "piecemeal" and relied on "precisely the kind of hindsight that the Board must not engage in"); *see also In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992) ("It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious. . . . '[O]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.'" (footnote omitted) (quoting *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988)); *Cheese Sys., Inc. v. Tetra Pak Cheese & Powder Sys., Inc.*, __ F.3d __, 2013 WL 3984991, at *9 (Fed. Cir. Aug. 6, 2013) ("Obviousness 'cannot be based

on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention.'" (quoting *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998))). Instead, "[w]hat matters is the path that the person of ordinary skill in the art would have followed." *Otsuka Pharm. Co. v. Sandoz, Inc.*, 678 F.3d 1280, 1296 (Fed. Cir. 2012) ("The inventor's own path itself never leads to a conclusion of obviousness; that is hindsight.").

Moreover, "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR*, 550 U.S. at 418; *see also In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000) ("[A] rejection cannot be predicated on the mere identification in [the prior art] of individual components of claimed limitations."); *Ecolochem, Inc. v. S. Cal. Edison Co.*, 227 F.3d 1361, 1374 (Fed. Cir. 2000) (reversing district court's obviousness ruling where the court performed a "reference-by-reference, limitation-by-limitation analysis" and merely "list[ed] each step [of the claimed invention] and state[d] where in the cited prior art references the step can be found").

Instead, there must be a "motivation to combine teachings from separate references." *Cheese Sys.*, 2013 WL 3984991, at *9 (citing *KSR*, 550 U.S. at 421-22). The motivation to combine, however, cannot result from a hindsight-based approach where the problems in the prior art are defined in terms of the

solution provided by the invention. *Ecolochem*, 227 F.3d at 1372 ("Although the suggestion to combine references may flow from the nature of the problem, '[d]efining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness.'" (alteration in original) (quoting *Monarch Knitting Mach. v. Sulzer Morat GmbH*, 139 F.3d 877, 881 (Fed. Cir. 1998))); *see also Mintz*, 679 F.3d at 1377 (district court improperly relied on hindsight in characterizing a prior art problem because it "used the invention to define the problem that the invention solves").

Additionally, "[r]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

C. The Claims Would Not Have Been Obvious Because Burris, Wilkins, and Allen, Even in Combination, Do Not Disclose Important Claim Limitations that Satisfied Long-Felt Needs

1. Burris, Wilkins, and Allen do not disclose supporting a flat-panel display with an "articulating arm assembly" having a "4-bar linkage containing a piston inside," as required by claim 1

Claim 1 of the '536 application, the sole independent claim at issue on appeal, covers "an articulating arm assembly to which the flat panel display is connected for adjusting the elevation and lateral position of the flat panel display with respect to the main body . . . wherein at least one of the arms includes a 4-bar linkage

containing a piston inside the linkage." Neither Burris, Wilkins, nor Allen discloses this limitation.

As an initial matter, Allen does not contain an articulating arm assembly connected to a flat-panel display or a 4-bar linkage with a piston inside anywhere in its disclosure. *See* A362-67. Allen bears no relation to the ultrasound field at all—it involves a structural support assembly for a microwave antenna. *Id.*

Burris discloses an articulating arm assembly that connects the main body of an ultrasound machine to a display screen. A335-37. But, unlike claim 1 of the '536 application, Burris's articulating arm assembly does not contain a 4-bar linkage with a piston inside. A333-47. The examiner acknowledged this and relied on Wilkins to provide the feature. A317. The Wilkins articulating arm, however, supports a control panel, not a display screen, and only permits this control panel to move with one degree of freedom (i.e., up or down at an angle) while the user presses a lift release such as a foot pedal. A359 at 1:34-47; A360 at 3:9-25, 4:13-26.

Thus, all that results when Allen, Burris, and Wilkins are combined is an ultrasound machine with a display screen attached to the Burris articulating arm that also has a separate control panel capable of moving up and down at an angle (when a lift release is pushed) with the assistance of the Wilkins 4-bar linkage and piston. This combination of references does not disclose a design where the 4-bar

linkage and piston (not requiring the use of a foot pedal) is present in the articulating arm assembly that connects a flat-panel display to the ultrasound cart, as required by claim 1.[1]

2. Burris, Wilkins, and Allen do not disclose the "inter-arm locking mechanism" in claim 1

Claim 1 of the '536 application also requires "an inter-arm locking mechanism, located on the first and second arms, which is adapted to lock the two arms together in a stowed position when the two arms are lowered in line with the direction of travel." The direction of travel is "the front direction." Neither Burris, Wilkins, nor Allen discloses this claim limitation, alone or in combination.

The examiner admitted that Burris and Wilkins do not disclose an inter-arm locking mechanism. A317. Earlier in the prosecution, the examiner relied on a hinge in Burris as the inter-arm locking mechanism (A190-91), but withdrew this rejection after the applicants correctly explained that the hinge "provide[d] no locking ability" for the two arms (A221). Indeed, the arrows in Fig. 5 of Burris illustrate that the hinge 550 is free-swiveling and incapable of locking. A335.

[1] Along these lines, the combination of Burris, Wilkins, and Allen also does not disclose the limitation in claim 10 requiring the piston to be a "pneumatic piston" that "provide[s] a force which at least partially offsets the weight of the flat panel display"; the limitation in claim 11 where "an adjustment mechanism" is "coupled to the pneumatic piston, which is operable to adjust the force provided by the pneumatic piston"; or the limitation in claim 12 requiring a "pneumatic piston" that is "adjusted to provide a balancing counter-weight force when the second arm is oriented in a horizontal orientation."

After withdrawing the rejection, the examiner added Allen, concluding that this reference disclosed claim 1's inter-arm locking mechanism. A237-43. Allen, however, fails to disclose this limitation. Allen shows a tripod stand for a microwave dish. A366 at 1:33-40. Allen's antenna has three legs pinned to a bracket that slides up and down a central column. A362; A365; A366 at 2:27-47. When the bracket is slid to the bottom position, the legs are pinned to the bracket with a detachable pin to brace the tripod in the standing position. A366 at 2:4-63; A367 at 3:21-32. When the assembly is packed for moving, the pins are removed, the bracket is slid up the column, and pins are reinserted to hold the legs folded against the column. A367 at 3:39-48; A366 at 1:25-30.

Allen does not describe "lock[ing] . . . two arms together in a stowed position," as required by claim 1. *See also* A18-19; A21; A36; A43 (Figs. 3 and 8C in the '536 application illustrate that the two arms in the articulating arm assembly are locked to each other). Instead, the "arms" in Allen (i.e., the three tripod legs) are folded up *individually* and stowed against a central column—they are not locked together. Moreover, because the arms are stowed vertically in Allen, this reference does not disclose claim 1's limitation of a "stowed position" where "the two arms are lowered in line with the direction of travel" (i.e., "the front direction"). In sum, neither Burris, Wilkins, nor Allen, alone or in combination, discloses the "inter-arm locking mechanism" of claim 1.

3. The claim limitations not disclosed by the three references solved a long-felt but unmet need

Traditional prior art ultrasound systems involved carts carrying generators with CRT display devices on top. A343 at 1:13-16. Burris explains that the CRT display devices had "very limited positioning in relation to the size and weight of the ultrasound generator." *Id.* at 1:8-12. Accordingly, during use, ultrasound operators frequently had to turn their heads "from the patient to the CRT display," which is a possible cause for "body strain, increased operator fatigue, and loss of efficiency." *Id.* at 1:19-26. Moreover, the substantial size and weight of the CRT display raised the ultrasound device's center of gravity. *Id.* at 1:28-29. "If the CRT display were positioned away from the cart, such as with a mechanical arm, the cart would become unstable." A346 at 7:11-13. Large carts were often used to compensate for the stability problems caused by the CRT displays, which "prohibit[ed] a highly compact, portable ultrasound system." A343 at 1:29-36.

Burris attempted to solve some of these problems by using a lighter display screen attached to an articulating arm that could be positioned somewhat away from the cart. *Id.* at 1:57-2:9; A346 at 7:52-62. According to Burris, there was "less danger" in positioning this type of display over a patient as compared to the bulkier CRT display. A346 at 7:57-59. Burris failed to fully solve the problems it identified, however. A person skilled in the art would know that the Burris display screen and articulating arm still had mass and could make the ultrasound machine

unstable if extended too far from the cart. Moreover, a person skilled in the art would know that a sonographer would have to use at least some amount of force when positioning the Burris display screen, making it difficult to move the display screen while performing an ultrasound on a patient.

The invention disclosed in the ’536 application fully solved the problems left unmet by Burris. First, the 4-bar linkage with a piston contained in the articulating arm assembly offsets the mass of the display screen (A21), which enables the display screen to be positioned far from the ultrasound cart without creating stability issues. This design feature also enables a sonographer to easily move the display screen with the touch of a finger. *See* A14; A17-18; A21; A218; A286. Admittedly, an ultrasound machine with a display screen that moves so easily poses risks when being moved from room to room, especially in a hospital setting where the hallways are packed with traffic. The inter-arm locking mechanism resolves this concern by providing a way to safely stow the display screen and articulating arm assembly during transportation.

In sum, because of the articulating arm assembly’s 4-bar linkage and piston feature and the inter-arm locking mechanism—both limitations of claim 1—the ultrasound system disclosed in the ’536 application can be transported safely through the halls of the hospital directly to a patient’s bedside with the articulating arms securely stowed; the display screen can be positioned directly over the patient

without worrying that it will fall; and the screen can be repositioned with minimal effort throughout the examination (e.g., during the examination of a child who will not sit still). Thus, the articulating arm assembly's 4-bar linkage and piston limitation, as well as the "inter-arm locking mechanism" limitation—neither of which is disclosed in Burris, Wilkins, or Allen—combine to completely solve the problems regarding weight, stability, and mobility plaguing the prior art ultrasound machines. When considered as a whole, the claimed ultrasound system disclosed in the '536 application is a superior design and a significant improvement over the prior art. *See Sanofi-Synthelabo*, 550 F.3d at 1086 ("The determination of obviousness is made with respect to the subject matter as a whole, not separate pieces of the claim.").

4. Applying the Court's precedent to the facts of this case warrants reversal

This Court has reversed obviousness rulings when combinations of prior art references failed to disclose claim limitations that were "important." *See Crocs, Inc. v. Int'l Trade Comm'n*, 598 F.3d 1294, 1308 (Fed. Cir. 2010). In *Crocs*, the International Trade Commission (ITC) found a patent on shoes invalid for obviousness. *Id.* at 1297. The only claim limitation not disclosed by two prior art references related to a foam strap on a shoe. *Id.* at 1308. On appeal, this Court explained that the foam strap was an "important" distinguishing feature over the prior art because the prior art taught away from using foam straps on shoes. *Id.*

Relying on this reasoning, the Court reversed the ITC's obviousness ruling. *Id.* at 1297; *see also Source Search Techs., LLC v. LendingTree, LLC*, 588 F.3d 1063, 1072-73 (Fed. Cir. 2009) (vacating district court obviousness finding where none of the prior art disclosed a claim limitation that addressed a problem for which the "solution may not have been a straightforward step"); *Vizio, Inc. v. Int'l Trade Comm'n*, 605 F.3d 1330, 1342-43 (Fed. Cir. 2010) (affirming ITC finding invention not obviousness where two prior art references failed to disclose claim limitation involving "MPEG program map information," either alone or in combination). As described in Section VI.C.3, *supra*, the articulating arm assembly's 4-bar linkage and piston limitation and the "inter-arm locking mechanism" limitation, both of which are absent from Allen, Burris, and Wilkins (alone or in combination), are "important" because they satisfied long-felt but unmet needs in the ultrasound industry involving weight, stability, and mobility. Accordingly, the claims of the '536 application would not have been obvious.

That the claim limitations not disclosed in Burris, Wilkins, or Allen satisfied a long-felt need is also significant under *Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 655 F.3d 1364 (Fed. Cir. 2011). In *Star Scientific*, the two prior art references at issue did not disclose a claim limitation involving curing tobacco with "air free of combustion gases." *Id.* at 1376. This Court explained that, before the invention, there was "a substantial need in the industry for curing methods that

minimized or eliminated the formation of [tobacco-specific nitrosamines]," which were compounds created when tobacco was cured with air *containing* combustion gases. *Id.* at 1367, 1376. Relying on the undisclosed claim limitation (i.e., curing tobacco with air free of combustion gases), as well as the invention's solution of a long-felt need that related to the undisclosed claim limitation, this Court reversed a district court JMOL ruling that had upheld a jury verdict of obviousness. *Id.* at 1367, 1370-71, 1376; *see also Mintz*, 679 F.3d at 1379-80 (relying on "long-felt need" evidence to vacate a district court obviousness determination); *Apple Inc. v. Int'l Trade Comm'n*, __ F.3d __, 2013 WL 4007535, at *7 (Fed. Cir. Aug. 7, 2013) (secondary considerations such as long-felt need "must be considered before determining whether the claimed invention would have been obvious"). In sum, under this Court's precedent, the fact that the prior art does not disclose two important claim limitations that relate to solution of a long-felt need is significant. The claims of the '536 application should not have been rejected for obviousness under such circumstances.

D. A Person Skilled in the Art Would Not Have Combined Allen with Burris and Wilkins

The claims of the '536 application would not have been obvious for another reason: a person skilled in the art would not have combined Allen with Burris and Wilkins. Allen bears no relation to the ultrasound field—it relates to microwave antennas. *See* A362-67. The examiner said nothing about why a person skilled in

the art would look to the microwave dish field when designing an ultrasound device. And while the PTAB concluded that a person skilled in the art would look to Allen because it was analogous art, its analysis does not withstand scrutiny.[2]

When determining whether a reference qualifies as analogous art under the "reasonably pertinent" test, "the purposes of both the invention and the prior art are important." *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992). In *In re Clay*, this Court reversed an obviousness determination where the Board relied on a prior art reference involving the recovery of oil from rock by reducing the permeability of hydocarbon formations even though the reference had a different purpose than the claimed invention, which involved a process for storing a hydrocarbon product. *Id*. at 657-60. The difference in purposes between the prior art and the invention contributed to the Court's conclusion that the prior art reference was not analogous. *Id.* at 659-60.

In this case, the PTAB's analysis contains a similar flaw. While the PTAB implies at a general level that Allen and the claimed invention share a similar purpose since they both have locking mechanisms (A3), locking mechanisms come in a variety of different designs and are implemented in a variety of different

[2] The PTAB acknowledged that Allen was "not in the same field of endeavor as the claimed invention or Burris." A3. Thus, the first test for analogous art was not met. The PTAB concluded, however, that the second test was met, stating that the reference was "reasonably pertinent to the particular problem with which the inventor is involved, i.e., providing an inter-arm locking mechanism to lock the two arms together in a stowed position." *Id*.

devices. The mere fact that two devices have locking mechanisms does not necessarily mean that those devices, or their locking mechanisms, share a similar purpose.

For example, the locking mechanism in the ’536 application was designed for an ultrasound machine having a complex articulating arm assembly that needs to be stowed quickly and safely for transport through a hospital. *See* A291-92; A21. Such ultrasound machines are often used in medical facilities many times a day. In contrast, the Allen locking system was influenced by a different set of design considerations. Specifically, the Allen locking system had to work within the confines of a stabilizing structure capable of maintaining its integrity under “high wind loads.” A366 at 1:63-68. Moreover, a person skilled in the art would understand that the microwave dish in Allen would not be locked and stowed for transportation (and then unlocked and unstowed) nearly as much as the ultrasound system described in the ’536 application. Thus, the purposes driving the Allen locking system were different than the ones driving the locking system in the claimed invention. Accordingly, a person skilled in the art would not look to the microwave dish field when designing an ultrasound machine.

Even if Allen qualifies as analogous art, a person skilled in the art would not combine Allen with Burris and Wilkins for another reason: the Allen locking mechanism is incapable of incorporation into the Burris articulating arm design

because the two designs are incompatible. Put differently, the three-armed locking design of Allen, where the arms are folded up against a central column and stowed individually, would not work in an articulating arm assembly with two arms that must lock directly together. Also, the Allen design requires detachable pins. A366 at 2:48-63; A367 at 3:21-32. When the assembly is packed for moving, the pins are removed, the bracket is slid up the column, and the pins are reinserted to hold the legs folded against the column. A367 at 3:39-48; A366 at 1:25-30. A person skilled in the art would not want to add this layer of complexity to the locking system of an ultrasound device that must be locked and unlocked multiple times a day, often in response to a medical emergency. *In re Clay*, 966 F.2d at 660 (differences in function and structure between a reference and the claimed invention provide a basis for why a person skilled in the art would not consider the reference prior art). In sum, all that results from the combination of Allen, Burris, and Wilkins, from a locking standpoint, is an ultrasound machine with the Burris articulating arm and an extraneous Allen locking system that would be incapable of locking the two components of the Burris arm together, let alone in a position that lowers the arms in line with the direction of travel. For these reasons, the examiner's reliance on Allen is flawed and not supported by substantial evidence.[3]

[3] The examiner's decision to combine Burris and Allen might have stemmed from a misapplication of the claim language. As described in Section IV.D, *supra*, the examiner focused in his Answer on "the direction of travel" of the "part" (A317),

E. The Rejection Is Unsupported by Substantial Evidence and Should Be Reversed

1. The PTAB issued a conclusory decision relying almost entirely on the examiner's reasoning

In its one-and-a-half page decision, the PTAB's substantive analysis was the analogous art discussion on the Allen reference, which was "[f]or emphasis only." A2-4. The PTAB provided no other insight as to why a person skilled in the art would combine Burris, Wilkins, and Allen, and never addressed whether it even would be possible for a person skilled in the art to combine the designs described in these references. Instead, the PTAB adopted the analysis in the examiner's Answer. *See* A3. Accordingly, errors in the examiner's Answer constitute errors in the PTAB's decision. As described below, the examiner's Answer, and thus the PTAB's decision, are both flawed.

2. The examiner improperly relied on hindsight and used the invention as a template to piece together the prior art

In his Answer, and throughout prosecution, the examiner took a consistent approach in issuing rejections: state which claim features Burris discloses, state

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referring to the movement of the flat-panel display in Burris (*id.*). Claim 1, however, focuses on the "direction of travel" of "the cart" such that the two articulated arms are "lowered in line" with that "direction of travel." Neither Burris, Wilkins, nor Allen shows that the arms (or legs) are lowered in line with the direction of travel of the cart (i.e., the front direction). When the direction of the cart's travel is considered, as opposed to the direction of travel of the "part," the claims of the '536 application become even stronger against the Burris, Wilkins, and Allen combination.

which claim features Burris does not disclose, and then use Wilkins and Allen to supply the missing limitations. In particular, the examiner stated that Burris disclosed:

- "a flat panel display electrically coupled to the imaging electronics"
- "an articulating arm assembly to which the flat panel display is connected for adjusting the elevation and lateral position of the flat panel display with respect to the main body"
- "the articulating arm assembly including a first arm movably mounted to the main body and a second arm movably connected to the first arm and to the flat panel display"

A316-17.

Next, the examiner determined that Burris did not disclose an articulating arm assembly with "a 4-bar linkage containing a pneumatic piston inside the linkage" or "an inter-arm locking mechanism, located on the first and second arms which is adapted to lock the two arms together in a stowed position when the two arms are lowered in line with the direction of travel." A317. He concluded that Wilkins provided the "4-bar linkage containing a pneumatic piston" limitation and that Allen disclosed the "inter-arm locking mechanism." *Id.*

This is the exact "reference-by-reference, limitation-by-limitation analysis" that this Court has rejected in the past. *Ecolochem*, 227 F.3d at 1374 (reversing a district court's obviousness ruling where the court issued an opinion that merely "list[ed] each step [of the claimed invention] and state[d] where in the cited prior

art references the step can be found"); *see also In re NTP*, 654 F.3d at 1299 ("Care must be taken to avoid hindsight reconstruction by using 'the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.'" (quoting *Grain Processing*, 840 F.2d at 907)); *Cheese Sys.*, 2013 WL 3984991, at *9 ("Obviousness 'cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention.'" (quoting *ATD*, 159 F.3d at 546)).

Instead, the examiner should have (1) considered "the path that the person of ordinary skill in the art would have followed," *Otsuka*, 678 F.3d at 1296; (2) focused on "the invention as a whole" as opposed to "substitutions and differences" regarding individual claim limitations, *Gillette*, 919 F.2d at 724; *see also Sanofi-Synthelabo*, 550 F.3d at 1086; and (3) provided a valid reason to combine Burris, Wilkins, and Allen, *see Cheese Sys.*, 2013 WL 3984991, at *9 (citing *KSR*, 550 U.S. at 421-22). The examiner did none of these things.

3. The examiner's reason for combining Burris, Wilkins, and Allen fails under this Court's precedent

The examiner's only attempt to explain how or why a person skilled in the art would combine Burris with Wilkins and Allen is as follows:

> It would have been obvious to one of ordinary skill in the art . . . to modify Burris's system to include . . . a 4-bar linkage containing a pneumatic piston . . . [and] an inter-arm locking

> mechanism, located on the first and second arms which is adapted to lock the two arms together in a stowed position when the two arms are lowered in line with the direction of travel as taught by Wilkins and Allen because . . . a 4-bar linkage containing a pneumatic piston inside the linkage for balancing the mass of the display [sic]; and the interlocking mechanism locks and folds the two arms together for convenient transportation of the support assembly.

A317-18. The examiner's analysis reduces to the following: (1) it would have been obvious to modify Burris to include Wilkins's 4-bar linkage design containing a pneumatic piston because this design helps balance the mass of the display; and (2) it would have been obvious to modify Burris to include Allen's locking mechanism because this design would lock and fold the arms together for more convenient transportation. Put differently, the examiner relied *solely on the benefits provided by the missing claim limitations* (i.e., offsetting the mass of the display screen and convenient, safe transportation of the ultrasound cart) for his reasons why a person skilled in the art would combine Wilkins and Allen with Burris.

This type of analysis—where an examiner, benefitting from the knowledge of the applicant's invention, uses hindsight to define the problem in terms of the solution provided by the invention—contravenes this Court's precedent. *See Ecolochem*, 227 F.3d at 1372; *Mintz*, 679 F.3d at 1377; *Monarch Knitting*, 139 F.3d at 881. The examiner's reason to combine also fails because it is conclusory. *KSR*, 550 U.S. at 418 ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated

reasoning with some rational underpinning to support the legal conclusion of obviousness." (alteration in original) (quoting *In re Kahn*, 441 F.3d at 988)).

That the examiner provided no valid reason to combine is evident in other parts of the Answer as well. For instance, the applicants explained that Burris does not disclose the 4-bar linkage and piston design required by claim 1 and that Wilkins would not be combined with Burris because the Wilkins 4-bar linkage and piston design is confined to a control panel for an ultrasound machine that can only move vertically. A290. The applicants also stated that "[t]here is no suggestion to use the Wilkins et al. assembly for a much lighter flat panel display," noting that the Wilkins system itself had a flat-panel display but did not incorporate a 4-bar linkage and piston design into it. *Id.* Through these arguments, the applicants explained why it would not have been obvious for a person skilled in the art to combine Burris and Wilkins in the first place, let alone perform the additional step of moving the Wilkins 4-bar linkage away from the control panel to support a flat-panel display.

The examiner, however, declined to address the applicants' "reason to combine" arguments. The examiner never meaningfully stated why a person skilled in the art would combine Burris and Wilkins or move the 4-bar linkage and piston design away from the control panel to support the flat-panel display. Instead, he relied on Wilkins for the mere fact that it disclosed a 4-bar linkage and

piston design *somewhere* in the ultrasound device. *See* A321 ("Appellants' argument is not persuasive because examiner only relies on Wilkins to teach 4-bar linkage and piston. . . . Examiner does not rely on Wilkins to teach mechanical device for lifting."). This type of conclusory, piecemeal, and hindsight-driven analysis cannot support an obvious rejection.

The examiner's analysis for the inter-arm locking mechanism limitation contains the same flawed logic. The applicants provided reasons why it would not have been obvious for a person skilled in the art to rely on Allen to supply the locking mechanism not disclosed in Burris or Wilkins. A291. In particular, the applicants explained that Allen related to the nonanalogous field of microwave antennas and that the Allen device involved a completely different and overly complex design that "doctors and nurses would not have the patience" to use. A291-92.

Once again, the examiner avoided the "reason to combine" issue and merely stated that "Appellants' argument is not persuasive because examiner only relies on Allen to teach stow position and locking mechanism. Allen discloses arms or legs that support a device. Allen discloses a supporting structure that in stows position and being lock by locking mechanism when not in use and this is what examiner relies on from Allen reference." A321. The examiner never stated whether it even would be possible to incorporate the Allen locking system into

Burris and Wilkins. Indeed, as described in Section VI.D, *supra*, a person skilled in the art would know that the Allen locking system would be incapable of locking the two components of Burris's articulating arm together, let alone in a position that lowers the arms in line with the direction of travel. The designs are incompatible.

In sum, the examiner never provided a legitimate reason why a person skilled in the art would combine Burris, Wilkins, and Allen to arrive at the claimed invention as a whole.

4. The examiner's analysis amounts to nothing more than an identification of claim limitations in the prior art, which warrants reversal

Because the examiner provided no valid reason to combine, the examiner's Answer amounts to nothing more than an identification of claim limitations in the prior art. Such an analysis is insufficient to support an obviousness rejection. *See KSR*, 550 U.S. at 418 ("[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art."); *In re Kotzab*, 217 F.3d at 1371 (reversing obviousness determination by the Board after stating that "a rejection cannot be predicated on the mere identification in [the prior art] of individual components of claimed limitations"). Thus, the examiner's Answer is flawed and not supported by substantial evidence. And because the examiner's reasoning was incorporated into

the PTAB's decision in full and left untouched, the PTAB's decision is also unsupported by substantial evidence. The PTAB's cursory analysis of Allen qualifying as analogous art does not cure the deficiencies in the examiner's Answer. Accordingly, the PTAB's decision sustaining the examiner's rejection should be reversed.[4]

VII. CONCLUSION

For these reasons, this Court should reverse the PTAB's decision sustaining the examiner's rejection of claims 1, 3, 4, and 6-14.

Date: September 4, 2013 Respectfully submitted,

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[4] Even if the PTAB or examiner had provided a fuller analysis, reversal would still be appropriate for the reasons stated in Section VI.C & D, *supra*.

ADDENDUM

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JOHN MURKOWSKI,
ROBERT MESAROS, and LARRY AZZANO

Appeal 2011-012415
Application 10/597,536
Technology Center 3700

Before JEFFREY N. FREDMAN, ERICA A. FRANKLIN, and ULRIKE W. JENKS, *Administrative Patent Judges*.

FRANKLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) involving claims to an ultrasonic diagnostic imaging system. The Patent Examiner rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

Claims 1, 3-4, and 6-14 are on appeal. Claims 1, 11, and 12 are representative and are reproduced in the "Claims Appendix" of Appellants' Brief (App. Br. 12-14).

The Examiner rejected claims 1, 3-4, and 6-14 under 35 U.S.C. § 103(a) as unpatentable over Burris,[1] Wilkins[2] and Allen.[3]

Upon consideration of the evidence on this record and each of Appellants' contentions, we find that the preponderance of evidence on this record supports the Examiner's conclusions that (a) the subject matter of Appellants' claims 1, 3-4, and 6-14 are unpatentable over the combination of Burris, Wilkins and Allen. Accordingly, we sustain the Examiner's rejections of each of these claims for the reasons set forth in the Answer (Ans. 4-10) which we incorporate herein by reference.

For emphasis only, we provide the following: Although not in the same field of endeavor as the claimed invention or Burris, Allen is still analogous, as it is reasonably pertinent to the particular problem with which the inventor is involved, i.e., providing an inter-arm locking mechanism to lock the two arms together in a stowed position. *See In re Clay*, 966 F.2d 656, 658-659 (Fed. Cir. 1992). A person of ordinary skill in the art seeking to provide an inter-arm locking mechanism to an articulating arm assembly of an ultrasonic diagnostic imaging system would naturally look to references employing locking mechanisms for articulating arm assemblies, including such assemblies for a microwave dish antenna. *See In re Paulsen*, 30 F.3d 1475, 1481 (Fed. Cir. 1994) and *In re ICON Health and Fitness, Inc.*, 496 F.3d 1374, 1380 (Fed. Cir. 2007)("[A]n inventor considering a hinge and latch mechanism for portable computers would naturally look to

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[1] US Patent No. 5,924,988 issued to David E. Burris et al., Jul. 20, 1999.
[2] Patent No. US 6, 663,569 B1 issued to Jay Wilkins et al., Dec. 16, 2003.
[3] US Patent No. 5,363,116 issued to Carrol M. Allen, Nov. 8, 1994.

references employing other 'housings, hinges, latches, springs, etc.,'" regardless of the area from which the element arose.).

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

cdc

APPENDIX A: CLAIMS APPENDIX

The following Claims 1, 3-4 and 6-14 are the claims involved in this appeal.

1. (previously presented) An ultrasonic diagnostic imaging system comprising:

a main body housing imaging electronics and a control panel coupled to the imaging electronics;

a flat panel display electrically coupled to the imaging electronics;

a wheeled cart on which is mounted the main body and the flat panel display with the control panel on the front, the wheeled cart being adapted so that the cart can travel in the front direction; and

an articulating arm assembly to which the flat panel display is connected for adjusting the elevation and lateral position of the flat panel display with respect to the main body, the articulating arm assembly including a first arm movably mounted to the main body and a second arm movably connected to the first arm and to the flat panel display, wherein at least one of the arms includes a 4-bar linkage containing a piston inside the linkage; and

an inter-arm locking mechanism, located on the first and second arms, which is adapted to lock the two arms together in a stowed position when the two arms are lowered in line with the direction of travel.

2. (canceled)

3. (original) The ultrasonic diagnostic imaging system of Claim 1, wherein the second arm includes a 4-bar linkage.

4. (original) The ultrasonic diagnostic imaging

system of Claim 3, wherein the 4-bar linkage includes first and second pivot axes located at an end of the second arm which is connected to the first arm, and third and fourth pivot axes located at an end of the second arm which is connected to the flat panel display.

5. (canceled)

6. (previously presented) The ultrasonic diagnostic imaging system of Claim 1, wherein the locking mechanism further comprises a user-operated lock release which is operated to cause the locking of the two arms to be released.

7. (original) The ultrasonic diagnostic imaging system of Claim 1, wherein the articulating arm assembly further includes a first vertical pivot axis located at an end of the first arm which is movably mounted to the first body, and a second vertical pivot axis located at an end of the first arm which is connected to the second arm.

8. (original) The ultrasonic diagnostic imaging system of Claim 7, wherein the articulating arm assembly further includes a third vertical pivot axis located at an end of the second arm which is connected to the flat panel display, and a horizontal pivot axis located at the end of the second arm which is connected to the flat panel display.

9. (original) The ultrasonic diagnostic imaging system of Claim 7, wherein the arc of travel of the first arm about the first vertical pivot axis is constrained to be less than 360°, and wherein the arc of travel of the second arm about the second vertical axis is constrained to be less than 360°.

10. (previously presented) The ultrasonic

diagnostic imaging system of Claim 1, wherein the second arm includes a 4-bar linkage, and wherein the piston further comprises:

a pneumatic piston which acts to provide a force which at least partially offsets the weight of the flat panel display.

11. (original) The ultrasonic diagnostic imaging system of Claim 10, further comprising an adjustment mechanism, coupled to the pneumatic piston, which is operable to adjust the force provided by the pneumatic piston.

12. (original) The ultrasonic diagnostic imaging system of Claim 11, wherein the pneumatic piston is adjusted to provide a balancing counter-weight force when the second arm is oriented in a horizontal orientation.

13. (original) The ultrasonic diagnostic imaging system of Claim 1, wherein the first arm exhibits a fixed upward inclination from an end which is connected to the main body to a second end which is elevated above the connection to the main body, and the second arm includes a 4-bar linkage.

14. (original) The ultrasonic diagnostic imaging system of Claim 3, wherein the 4-bar linkage includes first and second upper bars coupled between the first and third pivot axes and third and fourth lower bars coupled between the second and fourth pivot axes,

wherein the first bar is rigidly connected to the second bar and the third bar is rigidly connected to the fourth bar.

15. - 20. (canceled)

CERTIFICATE OF SERVICE

I certify that on September 4, 2013, this BRIEF FOR APPELLANTS JOHN MURKOWSKI, ROBERT MESAROS, and LARRY AZZANO was filed electronically using the CM/ECF system and served via the CM/ECF system on counsel for the Appellee, U.S. Patent and Trademark Office, as follows:

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/s/ J. Michael Jakes

CERTIFICATE OF COMPLIANCE

I certify that this BRIEF FOR APPELLANTS JOHN MURKOWSKI, ROBERT MESAROS, and LARRY AZZANO contains 8,883 words as measured by the word-processing software used to prepare the brief.

/s/ J. Michael Jakes